

AMENDMENTS TO THE CLAIMS:

This listing of claims will replace all prior versions, and listings, of claims in this application:

LISTING OF CLAIMS:

Claims 1 to 13. (Canceled).

14. (Currently Amended) A device for generating chlorine trifluoride comprising: a plasma reactor (100), plasma generating means (110, 120, 130, 150, 155, 160, 170, 180) via which a high-density plasma (105) can be generated in the interior of the plasma reactor (100), a first gas, a second gas selected to react with the first gas to form chlorine trifluoride when under the influence of a high-density plasma, gas supply means (21, 25, 22, 26) via which ~~[[a]]~~ the first gas and ~~[[a]]~~ the second gas can be supplied to the plasma reactor (100), these gases reacting with one another under the influence of the high-density plasma (105) in the plasma reactor (100), forming chlorine trifluoride, and a gas outlet (20) via which the formed chlorine trifluoride can be removed from the plasma reactor (100).

15. (Previously Presented) The device according to Claim 14, wherein the plasma generating means include a coil (110), an adaptation network (120), and a high-frequency generator (130).

16. (Previously Presented) The device according to Claim 14, wherein the plasma generating means include a microwave hollow conductor (150), tuning elements (155), a magnetron (170), a circulator (160), and a hollow conductor terminating element (180).

17. (Previously Presented) The device according to Claim 14, wherein the plasma reactor (100) includes a quartz tube or a hollow quartz body having a polished interior wall or a ceramic tube or a hollow ceramic body having a polished interior wall or being made of aluminum oxide.

18. (Previously Presented) The device according to Claim 14, wherein the gas supply means (21, 22, 25, 26) include a first mass flow regulator (22) via which the quantity of the first gas, which is supplied to the plasma reactor (100), is

adjustable, and the gas supply means (21, 22, 25, 26) include a second mass flow regulator (26) via which the quantity of the second gas, which is supplied to the plasma reactor (100), is adjustable.

19. (Previously Presented) A system for etching semiconductor substrates, comprising: the device (6) according to Claim 14, a process chamber (10), which is connected to the plasma reactor (100) via the gas outlet (20), being assigned to it, the semiconductor substrate (30) being situated in the process chamber (10) and being exposed to the gaseous chlorine trifluoride generated by the device (6) for generating chlorine trifluoride.

20. (Previously Presented) A method for generating chlorine trifluoride, comprising: generating a high-density plasma (105) in a plasma reactor (100), and supplying to the plasma reactor (100) a first gas and a second gas, which react with one another under the influence of the high-density plasma (105) in the plasma reactor (100), forming chlorine trifluoride.

21. (Previously Presented) The method according to Claim 20, wherein the high-density plasma (105) is generated using inductive high-frequency excitation or microwave excitation.

22. (Previously Presented) The method according to Claim 20, wherein a gas which includes Cl_2 or HCl is used as the first gas, and a gas which includes NF_3 , F_2 , SF_6 is used as the second gas.

23. (Previously Presented) The method according to Claim 20, wherein oxygen as an additional gas is supplied to the plasma reactor (100) or to a process chamber (10) downstream from the plasma reactor (100).

24. (Previously Presented) The method according to Claim 20, wherein the generated chlorine trifluoride is separated from hydrogen fluoride and other gas components, using a filter downstream from the plasma reactor (100).

25. (Previously Presented) The method according to Claim 20, wherein the first gas and the second gas are supplied to the plasma reactor (100) in such a way

that fluoride atoms and chlorine atoms, in the form of radicals or reactive species, are present in the high-density plasma (105) at a 3:1 ratio.

26. (Previously Presented) The method according to Claim 20, wherein the high-density plasma (105) is generated having a density in radicals or reactive species of at least 10^{11} particles per cm^3 , in particular at least 10^{12} particles per cm^3 .

27. (New) A method of generating chlorine trifluoride, comprising:
generating a high-density plasma in a plasma reactor;
supplying to the plasma reactor a first gas according to a first gas flow rate;
and
supplying to the plasma reactor a second gas according to a second gas flow rate, wherein
the first gas and the second gas react with one another under the influence of the high-density plasma to forming chlorine trifluoride in the plasma reactor, and
a ratio of the first gas flow to the second gas flow is selected to achieve an ideal stoichiometric conversion to chlorine trifluoride.

28. (New) The method of claim 27, further comprising:
supplying the chlorine trifluoride gas from the plasma reactor to a process chamber, wherein a gas flow of the chlorine trifluoride from the plasma reactor to the process chamber is greater than 100 sccm.